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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/281,059	03/09/1999	YOSHIHITO ASAO	Q53539	6703

7590 10/21/2002
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EXAMINER

PEREZ, GUILLERMO

ART UNIT PAPER NUMBER

2834

DATE MAILED: 10/21/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/281,059

Applicant(s)

ASAO ET AL.

Examiner

Guillermo Perez

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 July 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over

Applicant's admitted Prior Art (APA) in view of Hiroshima (U. S. Pat.

5,174,013).

APA discloses a rotor for an automotive alternator comprising:

a pair of field cores (12a,12b) each having a cylindrical base portion (121a,121b) and a plurality of claw-shaped magnetic poles (122a,122b) projecting from outer circumferential edges of the base portions (121a,121b), the field cores (12a,12b) are secured to a rotating shaft (11) facing each other wherein end surfaces of the base portions (121a,121b) are in close contact with each other and the claw-shaped magnetic poles (122a,122b) intermesh with each other;

a cylindrical bobbin (16) having a cylindrical portion (16a) and a pair of first and second annular flange portions (16b) projecting perpendicularly from both ends of the cylindrical portion (16a), the bobbin (16) being fitted over the base portions (121a,121b) of the pair of field cores (12a,12b);

a field winding (15) wound a predetermined number of turns into multiple layers on the cylindrical portion (16a) of the bobbin (16) of the rotor (1); and

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a recessed groove (161) formed in an inner surface of the first annular flange portion (16b) from an outer circumferential end of the first annular flange portion (16b) to an inner circumferential end thereof,

the field winding (15) is wound onto the cylindrical portion (16a) of the bobbin (16),

the bobbin (16) is formed to have a field winding mounting portion (16a) in which a radial length thereof is shorter than an axial length thereof, and

a starting portion (15a) of the field winding (15) is housed in the recessed groove (161). However, APA does not disclose that the field winding has a flat rectangular shape in which a pair of opposite flat surfaces are parallel. APA does not disclose that the pair of opposite flat surfaces face each other, relative to a radial direction of the cylindrical portion. APA does not disclose that a starting portion of the field winding is housed in the recessed groove so as to make the opposite flat surfaces square with an axis of the bobbin.

Hiroshima discloses that the field winding (4) has a flat rectangular shape (figure 4) in which a pair of opposite flat surfaces are parallel. Hiroshima discloses that the pair of opposite flat surfaces face each other (figure 7), relative to a radial direction of the cylindrical portion (3b). Hiroshima discloses that a starting portion (in figure 3) of the field winding (4) is housed in the recessed groove so as to make the opposite flat surfaces square with an axis of the bobbin (axis: "a straight line with respect to which a body or figure is symmetrical -- called also axis of symmetry" Merriam-Webster's Collegiate Dictionary Tenth Edition) (*refer to the figures attached showing that an axis*

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“diametrical axis” of the bobbin is perpendicular to the flat surface of the winding).

Hiroshima's invention has the purpose of increasing the wire density thus reducing the volume of the equipment using the coil.

It would have been obvious at the time the invention was made to modify the alternator of APA and provide it with the field winding configuration disclosed by Hiroshima for the purpose of increasing the wire density thus reducing the volume of the equipment using the coil.

2. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's admitted Prior Art (APA) in view of Hiroshima et al. (U. S. Pat. 5,174,013) and further in view of Harris et al. (U.S. Pat. No. 5, 539, 265).

APA and Hiroshima et al. disclose a rotor as described on item 1 above.

However, neither APA nor Hiroshima et al. disclose a vibration-suppressing ring fitted on the inner circumference of the claw-shaped magnetic poles of the pair of field cores.

Harris et al. (U.S. Pat. No. 5, 539, 265) disclose a vibration-suppressing ring (33) fitted on the inner circumference of the claw-shaped magnetic poles (16,18,20,22) of the pair of field cores (12,14). The invention of Harris et al. has the purpose of preventing vibration of the fingers of pole pieces as the rotor assembly rotates within the alternator assembly as a whole.

It would have been obvious at the time the invention was made to modify the rotor of APA and Hiroshima et al. and provide it with the vibration-suppressing ring disclosed by Harris et al. (U.S. Pat. No. 5, 539, 265) for the purpose of maximizing the winding density of the coil and minimize motor vibrations.

3. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's admitted Prior Art (APA) in view of Hiroshima et al. (U. S. Pat. 5,174,013) and further in view Harris et al. (U.S. Pat. No. 5, 892, 313).

APA and Hiroshima et al. disclose a rotor as described on item 1 above.

However, neither APA nor Hiroshima et al. disclose permanent magnets fitted between the claw-shaped magnetic poles of the pair of field cores.

Harris et al. (U. S. Pat. No. 5, 892, 313) disclose permanent magnets (34) fitted between the claw-shaped magnetic poles (18) of the pair of field cores (12, 14). The invention of Harris et al. (U. S. Pat. No. 5, 892, 313) has the purpose of increasing power output without increasing the physical size of the machine.

It would have been obvious at the time the invention was made to modify the rotor of APA and Hiroshima et al. and provide it with permanent magnets fitted between the claw-shaped magnetic poles of a pair of field cores as disclosed by Harris et al. (U. S. Pat. No. 5, 892, 313) for the purpose of increasing the power output of the machine without increasing the size of the machine.

4. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over APA in view of Gramlich et al. (U. S. Pat. 3,868,766).

APA substantially teaches the claimed invention except that it does not show that the field winding has a flat rectangular shape in which a pair of opposite flat surfaces are parallel. APA does not disclose that the pair of opposite flat surfaces face each other, relative to a radial direction of the cylindrical portion. APA does not disclose that a

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starting portion of the field winding is housed in the recessed groove so as to make the opposite flat surfaces square with an axis of the bobbin.

Gramlich et al. discloses that the field winding (38) has a flat rectangular shape in which a pair of opposite flat surfaces are parallel. Gramlich et al. discloses that the pair of opposite flat surfaces face each other, relative to a radial direction of the cylindrical portion. Gramlich et al. discloses that a starting portion (42) of the field winding (38) is housed in the recessed groove (of the insulation 47) so as to make the opposite flat surfaces square with an axis of the bobbin. The invention of Gramlich et al. has the purpose of maximizing the amount of copper conductor within the available space to maximize the magnetic field generated.

It would have been obvious at the time the invention was made to modify the alternator of APA and provide it with the field winding configuration disclosed by Gramlich et al. for the purpose of maximizing the amount of copper conductor within the available space to maximize the magnetic field generated.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the field winding in Gramlich et al. as a generator since it was known in the art that a generator performs the reverse process of a motor (Electric Motors and Motor Controls; 1995; Keljik; pages 139-142).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to shape the field winding as a cylinder since it was known in the art that field windings can be shaped as cylinders, leaves, squares, etc. (see U. S. Pat. 302,319).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the field winding in the rotor instead of the stator since it has been held that a mere reversal of the essential working parts of a device involves only routine skill in the art. *In re Einstein*, 8 USPQ 167. (see U. S. Pat. 1,822,261).

5. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's admitted Prior Art (APA) in view of Gramlich et al. and further in view of Harris et al. (U.S. Pat. No. 5, 539, 265).

APA and Gramlich et al. disclose a rotor as described on item 1 above. However, neither APA nor Gramlich et al. disclose a vibration-suppressing ring fitted on the inner circumference of the claw-shaped magnetic poles of the pair of field cores.

Harris et al. (U.S. Pat. No. 5, 539, 265) disclose a vibration-suppressing ring (33) fitted on the inner circumference of the claw-shaped magnetic poles (16,18,20,22) of the pair of field cores (12,14). The invention of Harris et al. has the purpose of preventing vibration of the fingers of pole pieces as the rotor assembly rotates within the alternator assembly as a whole.

It would have been obvious at the time the invention was made to modify the rotor of APA and Gramlich et al. and provide it with the vibration-suppressing ring disclosed by Harris et al. (U.S. Pat. No. 5, 539, 265) for the purpose of maximizing the winding density of the coil and minimize motor vibrations.

6. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's admitted Prior Art (APA) in view of Gramlich et al. and further in view Harris et al. (U.S. Pat. No. 5, 892, 313).

APA and Gramlich et al. disclose a rotor as described on item 1 above. However, neither APA nor Gramlich et al. disclose permanent magnets fitted between the claw-shaped magnetic poles of the pair of field cores.

Harris et al. (U. S. Pat. No. 5, 892, 313) disclose permanent magnets (34) fitted between the claw-shaped magnetic poles (18) of the pair of field cores (12, 14). The invention of Harris et al. (U. S. Pat. No. 5, 892, 313) has the purpose of increasing power output without increasing the physical size of the machine.

It would have been obvious at the time the invention was made to modify the rotor of APA and Gramlich et al. and provide it with permanent magnets fitted between the claw-shaped magnetic poles of a pair of field cores as disclosed by Harris et al. (U. S. Pat. No. 5, 892, 313) for the purpose of increasing the power output of the machine without increasing the size of the machine.

Response to Arguments

Applicant's arguments with respect to claims 1-3 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Guillermo Perez whose telephone number is (703) 306-5443. The examiner can normally be reached on Monday through Thursday and alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nestor Ramirez can be reached on (703) 308 1371. The fax phone

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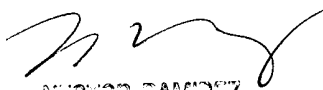
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numbers for the organization where this application or proceeding is assigned are (703) 305 3432 for regular communications and (703) 305 3432 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308 0956.

Guillermo Perez
October 8, 2002



VICTOR RAMIREZ
SUPERVISOR OF EXAMINER
OCT 10 2002